UNDER SECRETARY OF STATE FOR
ARMS CONTROL AND INTERNATIONAL SECURITY
WASHINGTON

October 18, 2022

MEMORANDUM FOR THE CHAIRMAN, INTERNATIONAL SECURITY ADVISORY BOARD (ISAB)

SUBJECT: Terms of Reference - ISAB Study on the Impact of Artificial Intelligence and Associated Technologies on Arms Control, Nonproliferation, and Verification

The International Security Advisory Board (ISAB) is requested to undertake a study to advise the United States on how artificial intelligence and associated technologies (hereinafter referred to as "AI") may impact arms control, nonproliferation, and verification, noting both the risks and benefits from its application.

> *"If AI and emerging technologies are] going to be used as part of our national defense, we want the world to have a shared understanding of how to do that responsibly, in the same way that we've hammered out rules for how to use conventional and nuclear weapons. That's how we reduce the risk of proliferation. It's how we prevent escalation or unintended incidents."*
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> - Antony Blinken, Secretary of State, July 2021

Emerging technologies represent a wide range of evolutionary as well as disruptive innovations that have national security relevance. As the 2022 National Security Strategy states, "emerging technologies [are] transform[ing] warfare and pose novel threats to the United States and our allies and partners." Technological development will play a critical role in defining the national security posture and competitive position of the United States. Emerging technologies also present new opportunities that can assist the U.S. government with issues that relate to national security, but these opportunities are not without risks.

Artificial intelligence (AI), is of particular interest, given its potential to transform decision-making and national security capabilities. Per the National Artificial Intelligence Act of 2020, "artificial intelligence" refers to "a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments." The speed of technological development is generating both enthusiasm for AI' s benefits and alarm over the potential for misuse.

The military and national security applications of AI, particularly related to nuclear weapons, are generating attention within government and other interested parties. Applications of machine learning algorithms to issues of arms control, nonproliferation, and verification could pave the way for innovative solutions within the field of nuclear policy. Emerging data science methods and advanced analytical tools can expose proliferation activities and can be a useful tool for U.S. government programs on nonproliferation, particularly in areas related to existing strategic trade controls on dual-use goods, determining the origin of illicit material or items, or detecting potential violations.

There also are questions about how AI could impact crisis stability and escalation, decision making, command and control, communication, and the verification of arms control measures and agreements. The rapid evolution of AI capabilities raises the concern that a focus on near-term applications and risks might result in the United States failing to anticipate long-term destabilizing impacts or developments that leave the United States at a strategic disadvantage or with ineffective technology. Some experts have raised concerns that applying AI to decision-making processes could lead to inadvertent escalation between nuclear powers or other states. The fast-paced development and implementation of new AI technologies is driving the discussion of the establishment of national AI ethical standards to encourage responsible state behavior and policies to realize its benefits while discouraging detrimental consequences. Other discussions concern how export controls and investment screening might be utilized to curb our adversaries' access to U.S. goods and technologies that could provide them military advantages or result in other destabilizing national security consequences.

Another challenge that the Department faces is retaining, attracting, or having access to the talent needed to understand the trajectory of AI development and its potential applications, highlighting the need to build partnerships with industry and academia. As of now, discussion and policy framework focused on the use cases, limitations, and capabilities of AI in nuclear and other military technology is still emergent. The Department needs the right technical and subject matter expertise to understand and successfully manage potential risks, and pursue potential opportunities derived from AI applications.

It would be of great assistance if the ISAB conducts a study on how artificial intelligence is impacting, and will impact, international security, noting both the risks and benefits from its application.

- Provide an assessment of the current state of AI application to international security, nonproliferation, and arms control missions within the Department of State and expected new capabilities in the coming decade.
- Identify potential interactions between AI and other emerging technologies (e.g., biotechnology, quantum information science) that might impact international security, arms control, and proliferation risks.
- Identify potential risks and opportunities from the application of AI in the military domain in a manner that affects strategic stability and nonproliferation including, but not limited to, nuclear operations.
- Identify avenues that the U.S government should explore to help build international norms of responsible state behavior and risk reduction measures related to AI.
- Identify supply chain chokepoints that would limit our adversaries' access to AI-enabling technologies.
- Identify ways AI can be used to enhance arms control and nonproliferation, specifically ways it can detect proliferation risks and/or enhance verification.

- Identify barriers to the successful application of AI technologies to arms control, nonproliferation, and verification, and how such obstacles can be addressed.
- Review the Department's acquisition and development strategies for limitations or gaps that would inhibit the Department from procuring the necessary attributes that are needed in this fast-moving technology for the acquisition of relevant data and training of personnel.

In the conduct of its study, as it deems necessary, the ISAB may expand upon the tasks listed above. I request that you complete the study in 180 days. Completed work should be submitted to the ISAB Executive Directorate no later than April 2023.

The Under Secretary of State of State for Arms Control and International Security will sponsor the study. The Assistant Secretary for Arms Control, Verification and Compliance will support the study. Anne Choi will serve as the Executive Secretary for the study and Michelle Dover will represent the ISAB Executive Directorate. Angela Sheffield will provide support as a subject matter expert.

The study will be conducted in accordance with the provisions of P.L. 92-463, the "Federal Advisory Board Committee Act." If the ISAB establishes a working group to assist in its study, the working group must present its report or findings to the full ISAB for consideration in a formal meeting, prior to presenting the report or findings to the Department.

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